



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D4202-1

Job Sheet 173722



Part No: D4202-1

Job Qty: 500 ea

Part Name: Spacer

506



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 3/6/18

Job Tracking No:

Due Date: 3/16/18

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: DWG REV C IPP REV:A NEW ISSUE 10-12-07 JLM VERIFIED:DD IPP REV:B AS PER REV B 11-04-05 JLM
VERIFIED BY:DD IPP Rev:C 11.12.19 PER DWG REV.C DD verf:EC

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	500 Ea	3/15/18	3/15/18	0.00	0.00	Start Up Machining-2	9-89	JB 18-03-24
100	Hardinge	500 pcs	3/15/18	3/15/18	0.00	21.28	Hardinge	11	JB 18-03-24
120	QC	500 pcs	3/15/18	3/15/18	0.00	0.00	QC8		JB 18-03-24
130	Outsource	500 pcs	3/15/18	3/15/18			MEI001-VC R0039483		CT 18/04/02 APR 18/13
140	Packaging	500 pcs	3/15/18	3/15/18	0.00	0.00	Packaging2		AD 18/04/13
150	QC	500 pcs	3/15/18	3/15/18	0.00	0.00	QC6	11	APR 13 2018
160	HandFinish	500 pcs	3/16/18	3/16/18	0.00	2.50	HandFinish4	9-89	1.4
190	Packaging	500 pcs	3/16/18	3/16/18	0.00	0.00	Packaging3-2		1.4
200	QC21-SA	500 Ea	3/16/18	3/16/18	0.00	0.00	QC21	9-89	1.4

Part Op 100 - 1- Machine as per Folio FB015 ***DO NOT CHAMFER OUTSIDE DIA***
Descriptions: 130 - ***HEAT TREAT AS PER DWG D4202***
160 - WASH SPACER AS PER QSI005
190 - ***STOCK IN SKIDTUBE CELL***

DAS
21
9-89
APR 27 2018

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
M6061T6T0.500W.058	6061-T6 Round Tube .500 X.058W	175 ft (.35 ea)	90-Start up Operation	

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	M6061T6T0.500W.058	175	90	0

Part Specifications

Spec No	Description	Target/Tolerance	Limits	Type	Special Comments
1	Spacer	0.500inches ± 0.010	0.510 0.490	Product	
2	Spacer	0.058inches ± 0.010	0.068 0.048	Product	
3	Spacer	4.145inches + 0.030 - 0.010	4.175 4.135	Product	

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____ Date : _____ _____ _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐	Skid-tube ☐ Machining ☐ Thermoforming ☐	AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Cross tube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>ite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>	Cross tube ☐	Water Jet ☐	Engineering ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	ite ☐	Supplier ☐	
Cross tube ☐	Water Jet ☐	Engineering ☐													
Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐													
Finishing ☐	Rec/Store/Packaging ☐	Other ☐													
ite ☐	Supplier ☐														
			MRB (QSI042) Approval												
			Completed By												
			Lead hand / Supervisor Approval Verification												
			QC / QA Coordinator Approval												

Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	BUIM/ROUTE ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : _____					

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 1270 Aberdeen Street
 Newkensbury, ON K6A 1K7
 CANADA
 TEL: 1 813 832-5200
 Email: sales@dartaero.com
 www.dartaerospace.com



Container No: S054571

Part: D4202-1

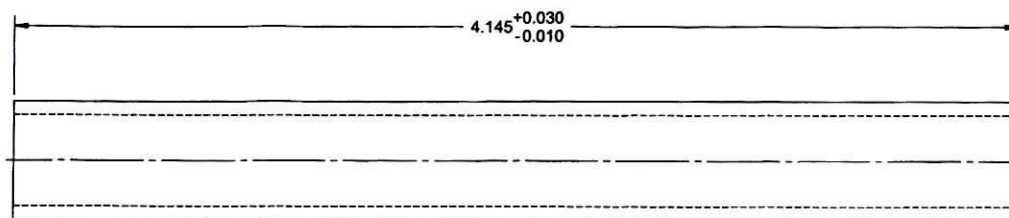
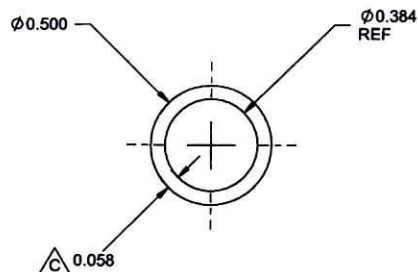
Job No: 173722

Serial No/Batch: S054571

Revision:

Inspector:

Date: 03/24/18



D4202-1 SPACER

RELEASED
2011-12-14

- NOTES:**
- 1) MATERIAL: 6061-T4/T42 ALUMINUM TUBING PER WW-T-700/6, AMS 4081, OR ASTM B210 / B221 / B241
REF DART SPEC M6061T4T0.500W.058
OR
6061-T6/T62 ALUMINUM TUBING PER WW-T-700/6, QQ-A-200/8, QQ-A-225/8, AMS 4080 / 4082, OR ASTM B210 / B221 / B241
REF DART SPEC M6061T6T0.500W.58
HEAT TREAT TO -T4/-T42 CONDITION. MIN UTS = 30 KSI (60 HREW MIN)
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: NONE
 - 7) WEIGHT: 0.03 lbs

C	6061-T4 WAS 6061-T6, 0.058 WAS 0.049	CP	11.12.13
B	0.049 WAS 0.058. REASON: FACILITATE MFG	MB	11.03.22
A	NEW ISSUE	CP	10.09.22
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>DR</i>		
DRAWN	<i>DR</i>		
CHECKED	<i>ASS</i>		
MFG. APPR.	<i>FF</i>		
APPROVED	<i>FF</i>		
DE APPR.	<i>FF</i>		
DATE	11.12.13		

DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D4202	REV. C
TITLE SPACER	SCALE NTS
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Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO039483**

Supplier: MEI001-VC
Metcor Inc.
560 Boul. Arthur Sauve
Saint-Eustache
QC
J7R 5A8 Canada
Phone: 450 473 1884
Fax: 450 491 5498

PO No: PO039483
PO Date: 4/2/18
Due Date: 4/12/18
Purchase Order
Revision:
Revision Date:
Ship-To Contact: Tsimiklis, ChrisoulaPhone:

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground
Pymt Terms: Net 30
Freight Terms:
Special Comments:

Items

Line Item	Job	Part	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	174484	D5304-1	Crossbolt Spacer 1-Issue P/O to Metcore ; P/O HEAT TREAT TO T4/T42 CONDITION MIN. UTS=30 KSI (60 HREW MIN) NOTE: DETAIL C OF C REQUIRED PART ARE MADE FROM 6061-T6 MATERIAL	Firmed	4/12/18	22 pcs ✓	0 pcs 22x	22 pcs AT 18/04/13	\$1.207052/pcs	\$26.56
2	174482	D4686-1	Spacer HEAT TREAT TO T4/T42 CONDITION MIN. UTS=30 KSI (60 HREW MIN) NOTE: DETAIL C OF C REQUIRED PART ARE MADE FROM 6061-T6 MATERIAL	Firmed	4/12/18	25 pcs ✓	0 pcs 25x	25 pcs AT 18/04/13	\$1.207052/pcs	\$30.18
3	171982	646.3314	Blade HEAT TREAT AS PER DWG 646.3300 FINISH: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS PART ARE MADE FROM AISI A2 TOOL STEEL	Firmed	4/12/18	16 pcs ✓	0 pcs 16x	16 pcs AT 18/04/14	\$19.50/pcs	\$312.00

Items										
Line Item	Job	Part	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
4	173722	D4202-1	Spacer ***HEAT TREAT AS PER DWG D4202***	Firmed	4/12/18	506 pcs	0 pcs	506 pcs	\$1.207052/pcs	\$610.77
						506x			AT 1804/13	
5	172530	RBW6405G07331-3G-3	Extractor HEAT TREAT TO RC 55-60 1-Issue P/O to Metcore ; P/O _____ RC _____ 2-Bead blast 3- Certificate of Conformity is required ***NOTE*** DROP SHIP TO FINISHER Metcore to ship directly to Groupe Altech or ATG Rush part - need it ready in 7 days. Thanks!	Firmed	4/12/18	4 pcs	0 pcs	4 pcs	\$75.00/pcs	\$300.00
						4x			AT 1804/12	
Line Item Note Rush part - need it ready in 7 days. Thanks!										
6	171605	RBW6405G06131-3G-7	Washer 1-Issue P/O to Metcore ; P/O _____ RC 50-55 2-Bead blast 3- Certificate of Conformity is required ***NOTE*** DROP SHIP TO FINISHER Metcore to ship directly to Groupe Altech***	Firmed	4/12/18	2 pcs	0 pcs	2 pcs	\$150.00/pcs	\$300.00
						2x			AT 1804/12	
Grand Total:										\$1,579.50

Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
326642	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

1

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
039483	N/A	AL-6061		

SPÉCIFICATIONS DU PROCÉDÉ

processing specifications

SOL ANNEAL

SINGLE AGING TO CONDITION T42

EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
CONDUCTIVITY	35 - 43 %IACS	20	39 - 41 %IACS
HARDNESS	80 HREW MIN	20	81 - 82,5 HREW
			DURETE MESUREE EN HR15TW 83-84 HR15TW

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
553	20	D5304-1 (22) D5304-1 JOB. 17448 (25) D4686-1 JOB 174482 (506) D4202-1 JOB 173722 1 BOITE DE CARTON

COMMENTAIRES / comments

APPROUVÉ par / Approved by:

DATE: 2018-04-12

Pierre Piché
Chief Inspector



APPROUVÉ



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METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

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Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Détail

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
326642	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
039483	N/A	AL-6061		

SPÉCIFICATIONS DU PROCÉDÉ processing specifications

SOL ANNEAL

SINGLE AGING TO CONDITION T42

EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
CONDUCT	35 - 43 %IACS	20 (60 kHz)	39 - 41 %IACS
HARDNESS	60 HREW MIN	20	61 - 62.5 HREW DURETE MESUREE EN HR15TW 63-64 HR15TW

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
553	20	D5304-1 (22) D5304-1 JOB. 17448 (25) D4686-1 JOB 174482 (506) D4202-1 JOB 173722 1 BOITE DE CARTON

COMMENTAIRES / comments

SOL. ANNEAL 985F, 40 MIN

AGE HARDEN AMBIANT, 96 HRS

Heat treatment (HT) was performed with equipment that meets the requirements of requested specification.

All HT operations were performed in compliance with the required HT specification and all verifications have been performed and documented. No unauthorized changes were performed in regards to the HT. We certify that the material was manufactured, sampled, tested and inspected in accordance with the material specification and the purchase order and was found to meet the requirements.

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Le traitement thermique (TT) a été fait en utilisant des équipements en conformité avec la spécification demandée.

Toutes les opérations de TT ont été faites en conformité avec les requis de la spécification demandée et toutes les vérifications et les tests demandés ont été faites et documentés. Aucun changement n'a été faite par rapport au TT. On certifie que le matériel a été fabriqué, échantillonné, testé et inspecté en accord avec les spécifications du matériel et le bon de commande et le matériel rencontre les exigences spécifiées.

Ce document et les documents qui lui sont joints peuvent contenir des informations confidentielles, être soumis aux

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Détaillé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
326642	1

CLIENT / customer 215

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APPROUVÉ par / Approved by:

Isabel Otero

Isabel Otero
QA Technician



DATE: 2018-04-13